

# Houston/Galveston Citizen Air Monitoring Project

Public Meeting  
September 12, 2002





# Introduction

William Rhea  
USEPA

# Agenda

- ★ 6:30 pm Introduction ----- William Rhea
- ★ 6:35 pm Meeting Goals ----- John Sullivan
- ★ 6:45 pm HGCAMP History & Goals ----- Doug Lipka
- ★ 7:00 pm Demonstration of Equipment
  - Bucket ----- Joe Goldman
  - Canister ----- David Brymer
- ❖ 7:30 pm Summary of Air Monitoring
- ❖ 7:45 pm Data So Far ----- Ed O'Neill
- ❖ 8:00 pm BREAK
- ❖ 8:00 pm How to Access Data on
  - on the Web ----- L.C. Miner
- ❖ 8:15 pm Citizen Involvement and ----- Jane Laping
- Participation (Panel ----- Jane Owen
- Discussion) ----- Joe Goldman
- John Sullivan
- Arlene Polewarczyk
- Juan Parras
- ❖ 8:50 pm Future Aspects ----- HGCAMP
- Workgroup

# HGCAMP Participants

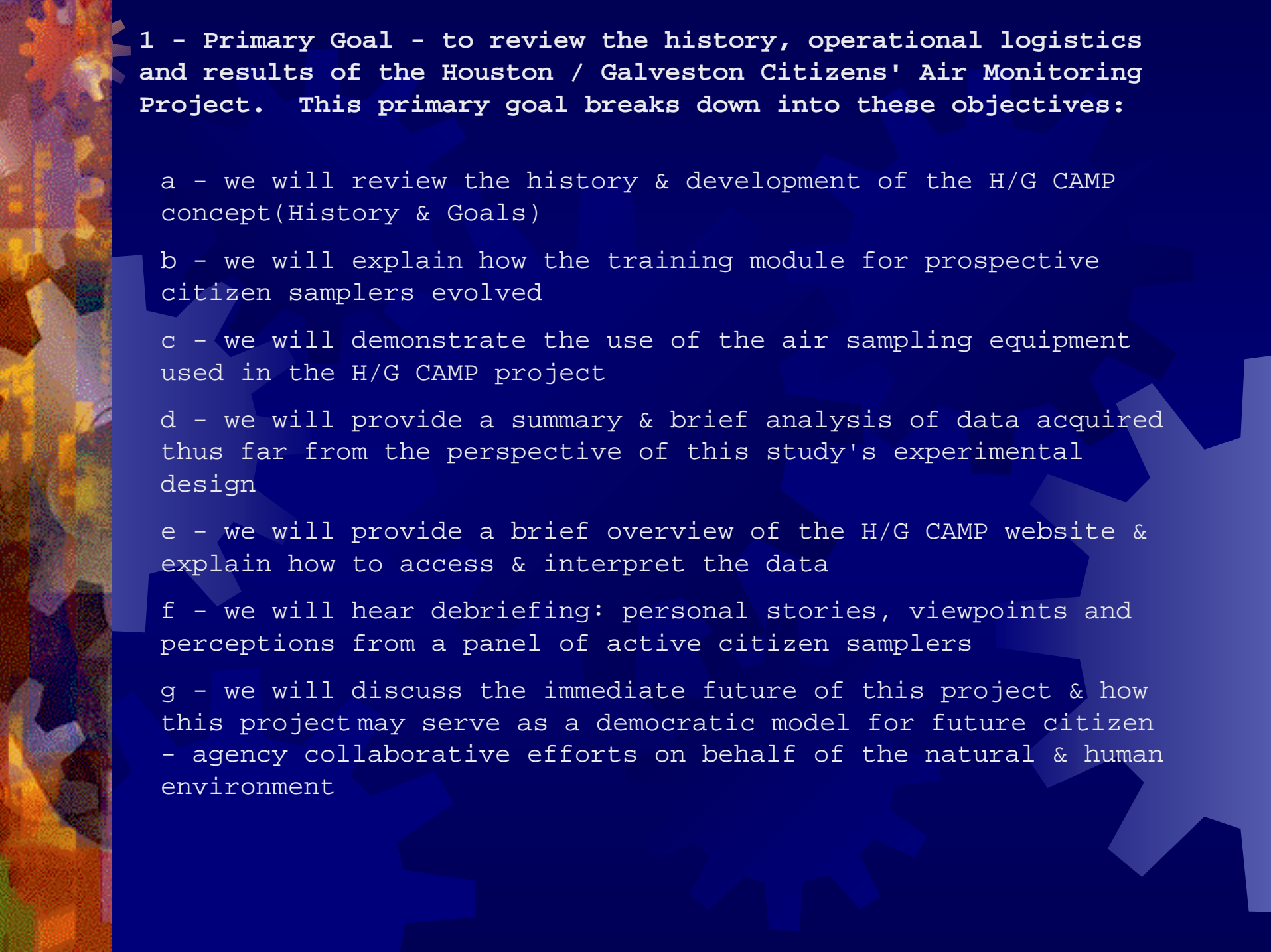
- ✱ Citizens
- ✱ Harris County Pollution Control
- ✱ City of Houston Bureau of Air Quality
- ✱ City of Houston Mayor's Office
- ✱ City of Galveston
- ✱ Texas Commission of Environmental Quality (formerly TNRCC)
- ✱ Environmental Protection Agency



# Meeting Goals

John Sullivan  
UTMB  
Galveston





1 - Primary Goal - to review the history, operational logistics and results of the Houston / Galveston Citizens' Air Monitoring Project. This primary goal breaks down into these objectives:

a - we will review the history & development of the H/G CAMP concept(History & Goals)

b - we will explain how the training module for prospective citizen samplers evolved

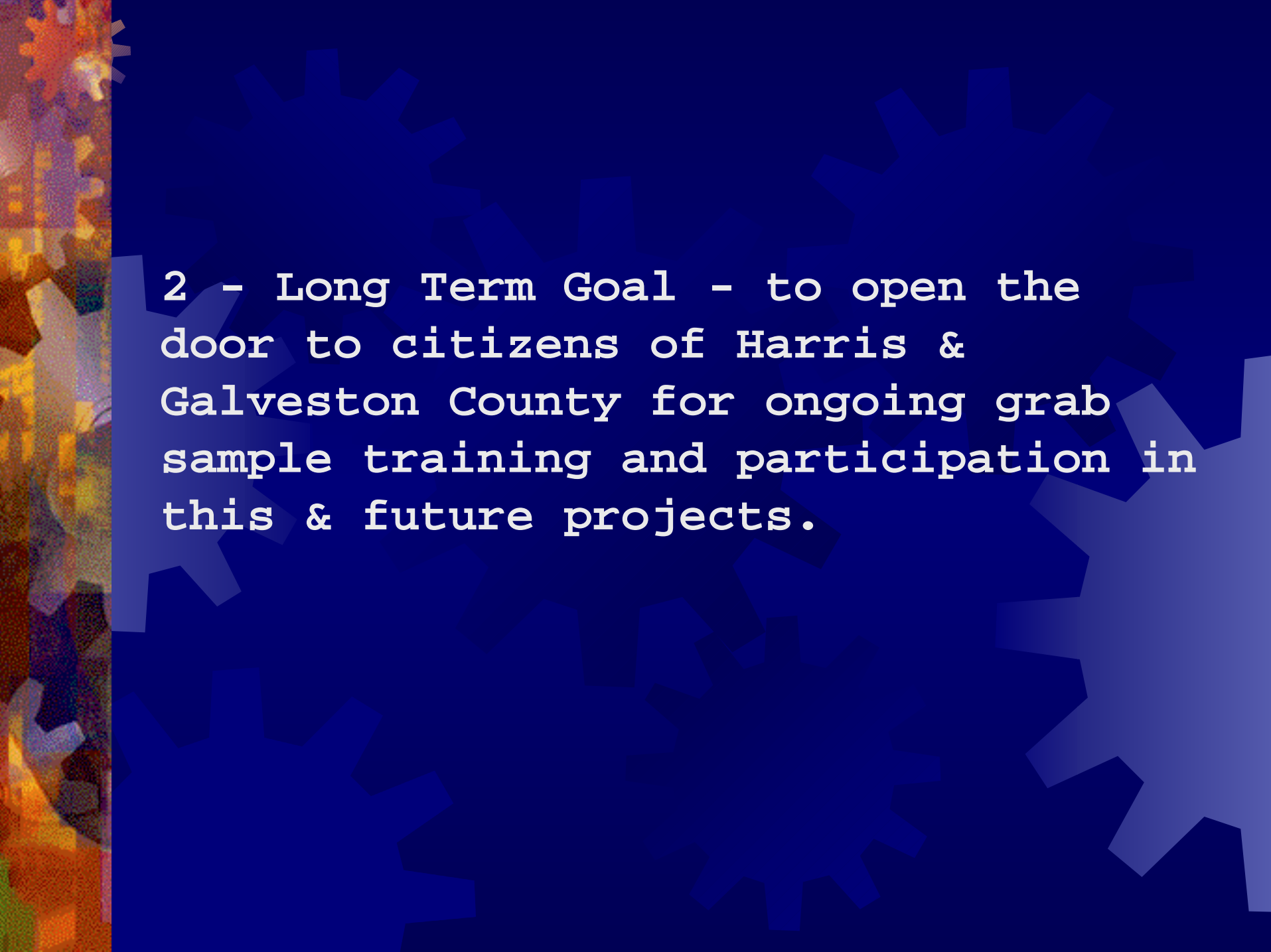
c - we will demonstrate the use of the air sampling equipment used in the H/G CAMP project

d - we will provide a summary & brief analysis of data acquired thus far from the perspective of this study's experimental design

e - we will provide a brief overview of the H/G CAMP website & explain how to access & interpret the data

f - we will hear debriefing: personal stories, viewpoints and perceptions from a panel of active citizen samplers

g - we will discuss the immediate future of this project & how this project may serve as a democratic model for future citizen - agency collaborative efforts on behalf of the natural & human environment



2 - Long Term Goal - to open the door to citizens of Harris & Galveston County for ongoing grab sample training and participation in this & future projects.



# HGCAMP History and Goals

Doug Lipka  
USEPA

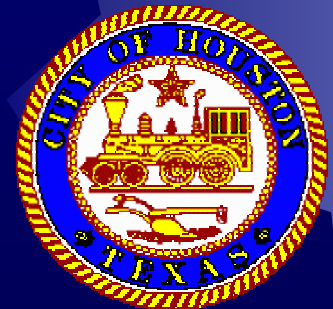


# Houston/Galveston Citizen Air Monitoring Project (**HGCAMP**)

*Tools for Citizen Air Sampling*

Public Meeting

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# Purpose of Project

- ✱ To assist citizens efforts in learning more about the quality of air in the Houston area.
- ✱ To field test various air sampling devices.

# Role of EPA in Air Quality

- ✱ Overall responsibility for Clean Air Act
- ✱ Permit new construction or modification until States delegated
  - ✱ TX delegated title V authority
- ✱ Work with States on violations of State Implementation Plans (enforcement)
- ✱ Provide financial assistance to State and local air pollution control programs



# Role of TNRCC in Air Quality

- ✦ Conduct monitoring of ambient air
- ✦ Develop air pollution control strategies and regulations
- ✦ Issue new construction or modification permits
- ✦ Conduct inspections of air emission sources
- ✦ Take enforcement action against violations of regulations
- ✦ Respond to citizen complaints

# Role of HCPC in Air Quality

- ✴ Investigate citizen complaints
- ✴ Conduct inspections of air emission sources
- ✴ Take enforcement action against violations of regulations
- ✴ Review TNRCC permits
- ✴ Provide local government recommendations on regulations



# Role of City of Houston

- ✦ Mayor's Office of Environmental Policy (MOEP)
  - Leadership role in the development of the Regional State Implementation Plan (SIP)
  - Implementation of the City of Houston Emissions Reductions Plan
- ✦ Bureau of Air Policy (Health and Human Services Dept.)
  - Coordinated departmental efforts with MOEP
- ✦ Bureau of Air Quality (BAQC)
  - Monitors air quality (daily information provided)
  - Enforcement role/Investigates air pollution complaints
  - Comments on permits to TNRCC
- ✦ City of Houston Departments
  - Coordinates environmental initiatives with Mayor's Office of Economic Development



# Houston Maps

- ✦ Air monitors and emission sites in east Houston
- ✦ Air monitor sites in Harris county



## 29 50" 22'



Sources: AIRS, AFS, TSD Polygons, TRI98, 1992 Census Bureau: TIGER/Line Files, ESRI data

-95 20" 24'

-95 14" 30"

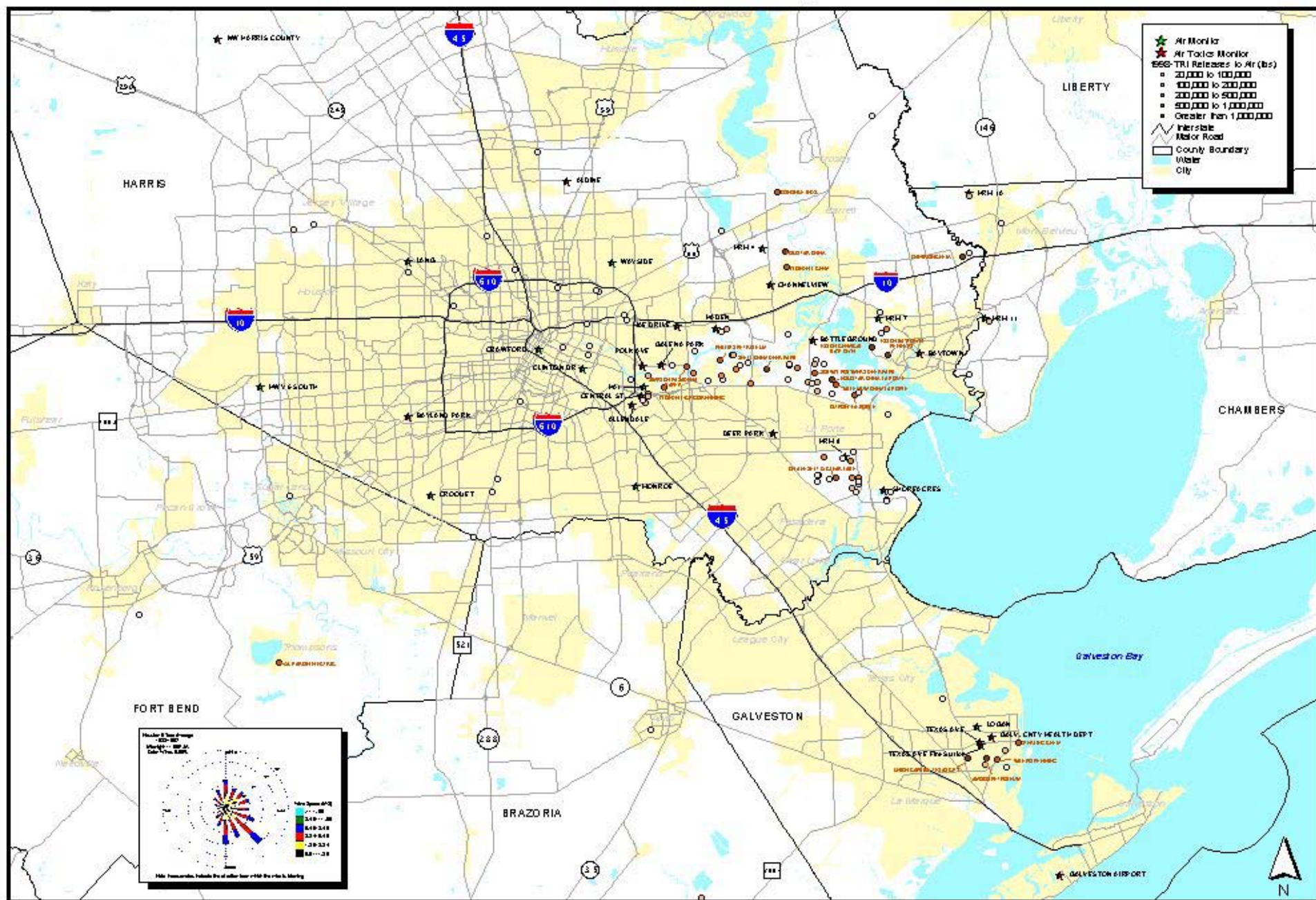
95 08" 43'

95.02" 57

.9458" 5A



# Air Monitor Sites in the Harris County Area



# Background

- ★ EPA, Region 6, became involved with citizen Air monitoring in Calcasieu, LA.
- ★ Within the past couple of years, several Houston area citizen groups requested assistance in air sample analysis.
- ★ TNRCC, HCPC, and EPA met several times last year and prior to discuss assistance.
- ★ Discussion with Region 9 EPA about their citizen Air monitoring project.



# Background (cont)

- ★ Discussions with EPA Offices about interest in Tedlar bag and canister air sampling.
- ★ TNRCC and EPA leadership discussed issues.
- ★ Texas Sunset Commission legislation requiring TNRCC to use standard EPA or TNRCC collection techniques.

# Citizen Air Sampling Study – why?

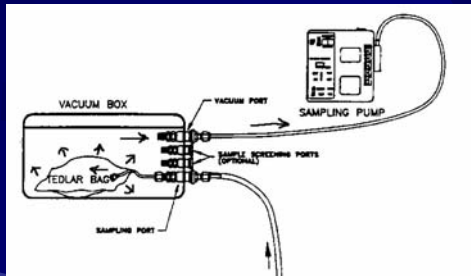
## ☀ Battelle Study

- ☀ Concluded that Tedlar bags show different results from canisters for several chemicals, but can be useful.

## ☀ EPA ORD recommends using canisters or sorbent tubes.

## ☀ Some studies indicate Tedlar bags can be useful for demonstrating Air quality problems, leading to further examination.

# Tedlar Bag Samplers



Lung-Type Devices



"Suitcase" Sampler



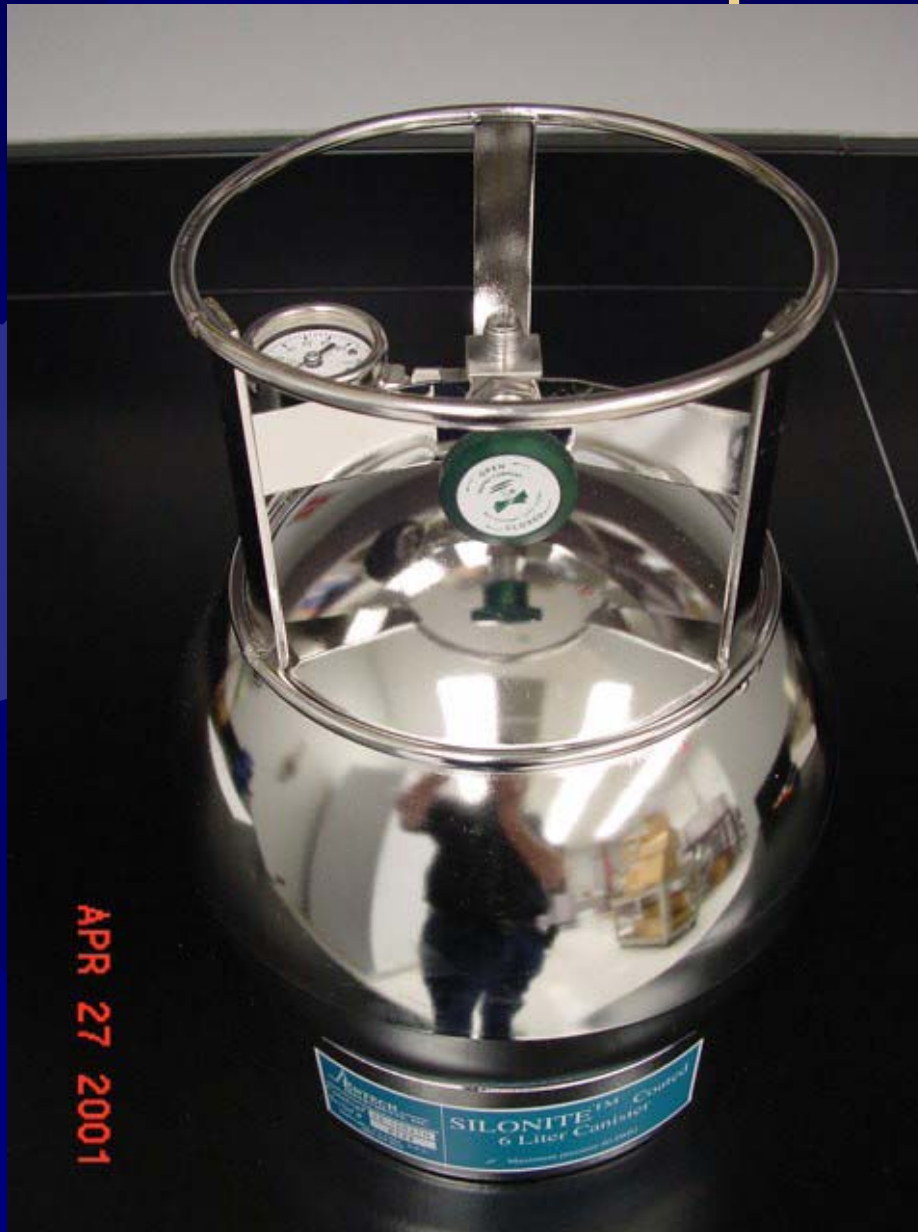
Citizen Homemade Device



**Tedlar® Bag**  
(EPA approved  
collection device for  
stack samples only)



# Canister Sampler



(EPA approved for  
ambient sampling)

# EPA Houston Laboratory





# Getting Started

- ★ Town Hall Meeting October 16, 2001
- ★ Two Work Groups formed – Info and Tech
  - ★ Technical to work out the details of the study
  - ★ Information WG to work out the exchange of information on project and other media
  - ★ Citizen and government co-chairs
- ★ Periodic updates for all participants
- ★ Use of Web sites

# Collaborative Effort

- ★ HCPC, TNRCC, City of Houston and EPA will assist in two aspects:
- ★ Citizen ambient air sampling using Tedlar bags and canisters
  - We provide canisters, bags, suitcases, Quality Assurance, training, and analysis.
- ★ Information exchange project
  - How is air quality determined?
  - How can citizens participate?
  - How do air quality levels determine improvement strategies, enforcement, and permitting?
  - How to access existing air quality information?



# Citizen Air Monitoring Project

- ☀ Focus on evaluation of “Tools for Citizen Air Sampling”
- ☀ Work with citizen groups, schools, and individuals in community
- ☀ Houston, Harris Co., and Galveston areas covered by project
- ☀ Samples collected at each site with either two sampling devices (simultaneous) or one sampling device and one field QC



# Citizen Air Monitoring Project (Cont)

- ★ Emphasis on Quality Control (QC)
  - ★ Absolutely necessary to determine usability of data (covered later in program)
- ★ Most samples analyzed by EPA Houston Lab, some by TNRCC
- ★ Program to run through March 31, 2002,
- ★ Data made available to citizens after review of the analysis (web site)

# Results

- ✱ Information for Communities and Agencies
  - ✱ Chemicals Detected
- ✱ Effectiveness and Efficiency of Devices
- ✱ Possible use for Further Action
- ✱ Currently around 50 samples analyzed



# Summary of Air Monitoring Data So Far

Ed O'Neill  
USEPA



Case Number	Published	Mixed Pair	Duplicate Cans	Duplicate Bags	Field Spike cans	Field Blank cans	Field Blank bags
2A1CBH01	yes			1			
2A1CBH02	yes	1					
2A1CBH02	no						
2A1CBH03	no						
2A1CBH04	no						
2A1CBH05	yes	1					
2A1CBH06	yes	1					
2A1CBH07	yes	1					
2A1CBH08	no						
2A1CBH08	yes		1				
2A1CBH09	yes		1				
2A1CBH10	yes	1					
2A1CBH11	yes	1					
2A1CBH12	yes	2					
2A1CBH13	yes	2		1			
2A1CBH14	yes						1
2A1CBH15	yes		1				
2A1CBH16	yes				1	1	
2A1CBH17	yes	1					
2A1CBH18	yes		1				
2A1CBH19	yes, pend.	2					
2A1CBH20	yes, pend.	1					
2A1CBH21	yes, pend.	1					
2A1CBH22	yes, pend.	1					
Total Sets = 26		16	4	2	1	1	1
mixed pair= 16							
QC pair=9							
total pair = 25							
total smp= 50							
A. Tedlar bag not opened.							
B. Malfunction of canister pressurization .							
C. Foreign Tedlar® bag							
D. Canister not opened.							
E. Insufficient sample - related to A above.							
F. Two compounds exceed calibration.							
G. Non synchronous sampling times							
H. Pre-existing bag contamination raising the dete detection limit over the amount reported in the other can.							
I. Reported 2-methylbutane (isopentane) in both but recorded in blank. Can't tell homw much is from which.							
J Cover on to tight on spike to tight.							
K. No Chain-of-Sutody Seals							
L. Did no call prior to delivery.							
M. Single canister collected.							
N. Single Tedlar® bag collected.							
O. Practice bag from first training sessions was used.							
P. Three Tedlar® bags and three canister collected, all non-collocated and non-synchronous.							

Date Collected: 16 July 02						
Targets	D0129	020536-0471	notes	020309-1-6	A0192	notes
dichlorodifluoromethane	1.7	1.6		---	1.5	
chloromethane	3.6	3.9		---	---	
vinyl chloride	---	0.8		---	3.7	
acrylonitrile	---	---		58.8	---	
hexane	5.5	---		---	9.1	
2-butanone	12.9			1430	21	
benzene	4.8	6.5		---	3.8	
2,2,4-trimethylpentane	20.3	22.6		---	4.8	
toluene	3.9	13.8		398	---	
chlorobenzene	---	0.7		---	---	
p/m-xylene	---	5.2		---	---	
o-xylene	---	1.8		---	---	
1,3,5-trimethylbenzene	---	1.2		---	---	
1,2,4-trimethylbenzene	---	1.3		---	---	
TICs						
1-propene	---	24		---	---	
propane	14	---		9	18	
C4H8 alkene	---	---		---	6	
n-butane	8	8		---	14	
acetaldehyde	4	---		---	2	
isopentane	16	13		---	30	
n-pentane	6	6		---	10	
C5H10 isomer	---	---		---	2	
2-propanone (acetone)	10	---		370	6	
2,3-dimethylbutane	4	4		---	---	
2-methoxy-2-methylpropane	---	9		---	---	
carbone disulfide	---	---		---	14	
2-methylpentane	4	---		---	8	
3-methylpentane	10	---		---	10	
C6H12 alkene	---	---		7	8	
2,4-dimethylpentane	4	---		---	4	
cyclohexane	2	4		---	---	
1-octene	---	---		8	4	
n-octane	---	---		7	4	
2,4-dimethyl-1-heptene	---	---		10	---	
2,3,4-trimethylpentane	4	6		---	---	
2,3,3-trimethylpentane	6	8		---	---	
unknown terpene	---	4		---	---	

[illegible]



Date Collected: 01 August 02							
<u>Targets</u>	970124-0275	B0184	Comments:				
dichlorodifluorometha	2.1	nd					
chloromethane	1.1	nd					
acrylonitrile	6.2	nd					
hexane	23	nd	Not an EPA issued bag. There was no batch representative assess the possible contamination. Another batch representative suggested that some of the targets (e.g.hexane) and some of the TICs could be coming from someplace other than the sample.				
2-butanone	210	nd					
benzene	1.2	nd					
4-methyl-2-pentanone	2.6	nd					
toluene	46.1	nd					
ethylbenzene	0.7	nd					
p/m xylene	2.1	nd	The canister has a dilution factor of 200. It had to be pressurized from 0.1 to 20 psia, a dilution factor of 200.				
styrene	7.2	nd					
<u>TICs</u>							
acetone	86	---	It could have been a small amount of a very concentrated sample (not in this project, which is 3 minutes).				
2-methylpropanol	13	---					
2-methylpentane	5	---					
2-methyl-1-pentene	4	---	2-butanone and toluene exceeded the calibration limits.				
n-butanol	190	---					
4-methylheptane	5	---					
n-octane	4	---					
2,4-dimethylheptane	34	---					
2,4-dimethyl-1-heptene	14	---					
4-methyloctane	13	---					
n-decane	14	---					
benzaldehyde	4	---					
alkane	4	---					
branched alkane	9	---					
n-dodecane	7	---					

Date Collected: 11 Aug 02			LOCATION:				
<u>Targets</u>	D0182	020803-1	Comments:				
No targets			Detection limits raised over the suspected				
			contamination not associated with the media or the s				
<u>TICs</u>							
propane	2	---					
n-butane	1	---					
acetaldehyde	1	---					
isopentane	2	---					
n-pentane	1	---					
pentadiene isomer	10	---	note: isoprene - 2-methyl-1,3-butadiene.				
unknown	4						

# Current Samplers

- ❖ 9 legacies
- ❖ 2 newly qualified with experience
- ❖ 1 newly qualified HGCAMP Officer
- ❖ 9 other newly trained
- ❖ 1 eligible trainer
- ❖ (3 ESAT people) – need IDC/badges
- ❖ 1 EPA person
- ❖ (1 ATSR/CDC person) needs badges



The background is a solid dark blue color. Overlaid on this are several large, stylized gears of varying shades of blue. On the far left, there is a vertical strip of a colorful, abstract, and pixelated pattern in shades of orange, yellow, and brown. The word "Break" is centered in the middle of the image in a yellow, sans-serif font.

Break



# How to Access the Data on the Web Page

L.C. Miner, USEPA



# Citizen Involvement and Participation

- ✱ Jane Laping
- ✱ Joe Goldman
- ✱ John Sullivan
- ✱ Arlene Polewarcyzk
- ✱ Juan Parras



# Future Aspects

HGCAMP Workgroup





# Total Active Eligible Samplers

21 immediately

23 potentially – includes EPA

27 possibly – includes ESAT